

# PATENT ABSTRACTS OF JAPAN

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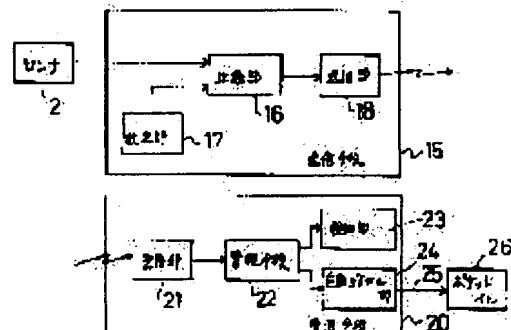
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## (54) PARTURITION ALARM DEVICE

### (57)Abstract:

**PURPOSE:** To accurately and easily know the parturition time of a livestock, and efficiently and safety enable parturition.

**CONSTITUTION:** A probe having a temperature sensor 2 is inserted in the vagina of a livestock. Prior to parturition of a fetus, forewaters are discharged, and at the same time, the probe is discharged outside, and the temperature sensor 2 detects a temperature change. A transmitting means 15 detects this temperature change, and wirelessly transmits a transmission signal, and a receiving means 20 outputs an alarm signal by wireless reception, and informs the livestock owner of a start of parturition.



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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION  
TECHNICAL PROBLEM MEANS OPERATION EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

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[Translation done.]

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**CLAIMS****[Claim(s)]**

[Claim 1] The delivery alarm which is a delivery alarm of an animal and is characterized by having a probe having the sensor inserted into the vagina of an animal, and a means to detect this discharge by this probe's preceding with an embryo at a perinatal period, and discharging it out of a vagina.

[Claim 2] Said probe is a delivery alarm according to claim 1 which is formed in said sensor and same axle and has the diameter of predetermined which can be freely inserted into the vagina of an animal.

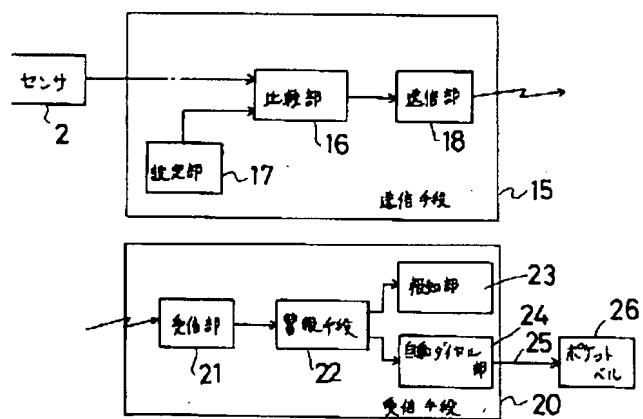
[Claim 3] By being the delivery alarm of an animal, being prepared in the probe having the temperature sensor inserted into the vagina of an animal, and said animal, and this probe's preceding with an embryo at a perinatal period, and discharging it out of a vagina The delivery alarm characterized by having the transmitting means which detects a temperature change and carries out wireless transmission of the dispatch signal, and a receiving means to be formed in the part distant from said animal, to receive a dispatch signal, and to output the alarm signal of the purport of a delivery.

[Claim 4] Said receiving means is the delivery alarm according to claim 3 which equipped the part defined beforehand, using the telephone line as an alarm signal with the auto-dial section which carries out an auto dial.

[Claim 5] The delivery alarm according to claim 3 which a belt is used for the root part of the tail of an animal, and can fix said transmitting means to it.

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[Translation done.]

Drawing selection **Representative drawing** ▾

[Translation done.]



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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Industrial Application] This invention relates to the delivery alarm which can sense the perinatal period term of livestock correctly beforehand.

#### [0002]

[Description of the Prior Art] Conventionally, about the delivery of animals, such as livestock, the monitor was subjectively performed by observation of the relaxed state of the tumidity of the udder, a pelvis, or the public region etc. based on experience of many years [ \*\*\*\* ]. Moreover, a surveillance camera is used for this observation and it is also performed that \*\*\*\* observes the monitor image of livestock in a remote part.

#### [0003]

[Problem(s) to be Solved by the Invention] each of these is insufficient for being unable to sense a delivery correctly but preventing the accident of a perinatal period, and it requires for delivery presence -- mental and physical fatigue are unfathomable. Many \*\*\*\* do not have observing [ little ] by all-night sitting, either. Moreover, if \*\*\*\* is in the monitor TV side near the animal and is not monitored continuously [ in the daytime ], it cannot do the presence of a delivery, but it exposes \*\*\*\* and a parent to risk in this case in many cases.

[0004] Especially the spread of the latest embryo transfer techniques is remarkable, and it is possible to give birth to twins artificial in producing a calf more expensive than a mother cow (\*\*\*\*\*\*) or three children freely. In such an example, since the accident of the perinatal period of \*\*\*\* serves as serious economical loss also compared with the former, it has the need of attending without missing a perinatal period term.

[0005] \*\* which this invention has grasped the perinatal period term of livestock correctly, and was mentioned above -- while the main labors are removable, it aims at offering the delivery alarm which can give birth to effectiveness and insurance.

#### [0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the delivery alarm of this invention is characterized by having a probe having the sensor inserted into the vagina of an animal, and a means to detect this discharge by this probe's preceding with an embryo at a perinatal period, and discharging it out of a vagina. Moreover, said probe is formed in said sensor and same axle, and can be considered as the configuration which has the diameter of predetermined which can be freely inserted into the vagina of an animal.

[0007] Moreover, it can also carry out as the configuration which has the probe having sensors, such as temperature inserted into the vagina of an animal, the transmitting means which detect a temperature change etc. and carry out the wireless transmission of the dispatch signal by being prepared in said animal, and this probe's preceding with an embryo at a perinatal period, and discharging it out of a vagina, and a receiving means are formed in the part distant from said animal, receive a dispatch signal, and output the alarm signal of a delivery. Furthermore, said receiving means can also be considered as the configuration which equipped the part defined beforehand, using the telephone line as an alarm signal with the auto-dial section which carries out an auto dial. And a belt may be used for the root part of the tail of an animal, and said transmitting means may be fixed to it.

#### [0008]

[Function] The probe having a sensor is inserted into the vagina of an animal. Since a belt is used for the root part of the tail of an animal and it is fixed to it, the detection signal of a sensor can respond to migration of an animal. And a probe is

preceded with an embryo at a perinatal period, and is discharged out of a vagina. Thereby, a transmitting means detects a temperature change etc. and carries out wireless transmission of the dispatch signal at a receiving means. With a receiving means, a dispatch signal is received and the alarm signal of the purport of a delivery is outputted. An auto dial can also be carried out to the part beforehand defined by the auto-dial section prepared in this receiving means, using the telephone line as an alarm signal, and \*\*\*\* can know the onset of labor promptly.

[0009]

[Example] Drawing 1 is drawing showing the probe 1 used for the delivery alarm of this invention. Although the configuration and size of a probe 1 change with animal species, the following explains a cow to an example. The temperature sensor 2 which detects temperature is formed in this probe 1. A temperature sensor 2 becomes by the platinum resistance. The outer case 3 which has a diameter of predetermined is formed at the tip of a temperature sensor 2. An outer case 3 can be inserted into the vagina 30 of the cow mentioned later, and it considers as the path which is not easily dedropping, and point 3a is formed in the shape of radii. And fillers, such as resin, are prepared and the inside of a probe 1 is fixing the temperature sensor 2.

[0010] Moreover, as shown in the sectional side elevation of drawing 2, a probe 10 can also be considered as the configuration in which the accessory plate 7 which has said diameter of predetermined was formed in a temperature sensor 2 and the same axle. Screw hole 7a screws this accessory plate 7 in flight channel 2a formed in the periphery of a temperature sensor 2, and it is formed in it. As shown in the top view of drawing 3, it cuts deeply in the shape of symmetry on a part of periphery of an accessory plate 7, section 7b is prepared in it, and easy-izing and omission prevention of said insertion can be aimed at.

[0011] Next, what is shown in drawing 4 is the block diagram showing the electric circuitry of a delivery alarm. The temperature signal from a temperature sensor 2 is inputted into the comparator 16 of the transmitting means 15. The setting signal from the setting section 17 is inputted into a comparator 16, and the temperature of the temperature signal of a temperature sensor 2 is measured with it to the laying temperature defined beforehand. When laying temperature is lower than the temperature of a cow, laying temperature is set as temperature [ higher than an OAT ] lower than the temperature of a cow, and a comparator 16 outputs a detection signal, when a temperature signal is lower than this. What is necessary is just to let temperature between an OAT and the temperature of a cow be laying temperature, when an OAT is higher than the temperature of a cow. That is, laying temperature is made into a predetermined difference with the temperature of a cow, and when a temperature signal exceeds this, it should just output a detection signal.

[0012] This comparator 16 is good also as a configuration which outputs a detection signal, when the temperature change of a temperature sensor 2 is supervised with time and this temperature change detects a rapid point. The transmitting section 18 transmits a dispatch signal on a predetermined frequency through a built-in antenna in response to the output of a detection signal. These temperature sensors 2 and the transmitting means 15 are formed in a cow so that it may mention later, and they operate by the cell.

[0013] The receiving means 20 is installed in the location in which \*\*\*\* is in the part distant from the cow. In addition, this receiving means 20 is installed in about 10-100m on the distance of the arbitration which the electric wave of the transmitting section 18 of the transmitting means 15 may reach, for example, practical use. The dispatch signal transmitted from the transmitting means 15 is received in a receive section 21, and the alarm means 22 is operated. Beforehand, the alarm means 22 outputs an alarm signal with voice etc. from the information section 23 by change setup of a switch etc., or makes telephone connection through the telephone line 25 to the part of further others by the auto-dial section 24. This auto-dial section 24 can also be considered as the configuration which makes telephone connection of this telephone number so that a pocket bell 26 may be called. In addition, this receiving means 20 operates using a source power supply.

[0014] As shown in drawing 5, the installation of said probe 1 is installed in the deep part (it is a back location from the opening 31 outside an urethra) of the vagina 30 of a cow, and it is installed so that trouble may not be caused to urination action of a cow. The code 5 of a temperature sensor 2 comes out from the vulva to the outside of the body, and is connected to said transmitting means 15. The transmitting means 15 is fixed to the root part of the tail 34 of a cow etc. with a belt 32. The root part of this tail 34 is the part which there is no motion and was suitable for immobilization of a device. Here, a code 5 has predetermined die length, and a sensor 2 makes it the die length which may be discharged to the outside of the body at the perinatal period mentioned later, and it constitutes it so that external ambient temperature may be detected.

[0015] Next, actuation of this equipment is explained with delivery progress of an animal. Although delivery progress

changes with various animals, it makes a cow an example.

- By the period to which a cervical canal is extended by the forewaters and shifts without a boundary from a uterus to a vagina after first stage labor pains begins, with a cow, although it is usually 3 - 6 hours, there is individual difference. A temperature sensor 2 is in a vagina 30 at this stage, and equipment does not operate.

[0016] - As shown in production term drawing 6, the ostium uteri is opened fully, and the forewaters 33 appears out of a vulva from a vagina 30. At this time, a probe 1 is discharged out of a vagina. The probe 1 discharged out of the vagina is the phase where the temperature signal of a temperature sensor 2 descended to below laying temperature, and outputs a detecting signal to the transmitting section 18. The transmitting section 18 carries out wireless transmission of the signal through a built-in antenna. and -- the receiving means 20 of a remote place -- the alarm means 22 -- operating -- the onset of labor -- \*\* -- it mainly tells about and \*\*\*\* is promptly movable to the location of livestock.

[0017] Then, the forewaters 33 explodes (the first amniorrhesis, the second amniorrhesis), amniotic liquid makes a parturient canal easy to slide, and the extraction of the embryo 35 is carried out. The time amount which this production term takes is 1 hour - 3 hours. As mentioned above, this equipment is equipment which generates an alarm just before that embryo's extraction (before amniorrhesis) in delivery progress of an animal, and the extraction of the embryo will be carried out in about 1 hour - 2 hours after an alarm.

[0018] Moreover, by making the code of the above-mentioned probe 1 into the die length in which touch-down is possible on the ground, and constituting from a pressure sensor with which a sensor detects an impact, it can detect that preceded with the delivery and the pressure sensor fell on the ground, and can consider as the configuration which outputs an alarm as well as the above-mentioned example, and \*\*\*\* can know a perinatal period term correctly even in this case.

[0019] Moreover, although considered as the configuration with which a probe 1 and the transmitting means 15 are formed in a part which is connected in code 5 and is different in the above-mentioned example, it can also consider as the configuration which formed the transmitting means 15 in the inside of a probe 1, for example, the outer case 3 interior.

[0020]

[Effect of the Invention] According to this invention, it precedes with an embryo at the perinatal period of an animal, a sensor is discharged outside, and since it is the configuration which carries out wireless transmission in the part which detected and left the temperature change in this case, the onset of labor can be known correctly and promptly, -izing of the presence of a delivery can be carried out [ certain ], and it has the effectiveness which can improve safety. Moreover, with a receiving means, it can know now in the configuration which calls a pocket bell further as an alarm output, then the part which left the perinatal period term further.

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(54)【発明の名称】 分娩警報装置

## (57)【要約】

【目的】 家畜の分娩時期を正確かつ容易にに知ることができるとともに、分娩を効率よく安全に行えること。

【構成】 動物の體内には温度センサ2を有するプローブが挿入される。胎児の分娩に先行して胎胞が排出されると同時にプローブが外部に排出され、温度センサ2は温度変化を検出する。送信手段15はこの温度変化を検出して発信信号を無線送信する。受信手段20では無線受信により警報信号を出力して畜主に分娩開始を知らせる。

